

WHAT IS CLAIMED IS:

1. A gas scrubber comprising:

a gas inlet pipe that provides the gas scrubber with gases to be processed;

a chamber of decomposition to which is connected the gas inlet pipe that
5 delivers the gases to be processed, such that the gases are decomposed into a plurality of
different byproducts through a thermal process in the chamber of decomposition;

a transparent means through which light can pass through, mounted onto the gas
inlet pipe before the chamber of decomposition;

a laser device arranged before the chamber of decomposition such that a laser
10 beam, output by the laser device, passes through the transparent means to decompose
the gases flowing in the gas inlet pipe into a plurality of gas radicals to initiate the
reaction of decomposition;

means for cooling down the plurality of byproducts produced in the chamber of
decomposition; and

15 means for scrubbing the plurality of byproducts produced in the chamber of
decomposition.

2. The scrubber of claim 1, wherein a set of reflective mirrors is further arranged
such that the laser beam passes through the gases a plurality of times.

3. The scrubber of claim 2, wherein the cross-section of the gas inlet pipe is
20 0.317cm^2 .

4. The scrubber of claim 3, wherein the flow rate in the gas inlet pipe is 16.7
cc/s.

5. The scrubber of claim 4, wherein the laser focal point is approximately 50cm
distant from the chamber of decomposition.

6. The scrubber of claim 5, wherein the laser pulse width is $1\mu\text{s}$, the spot size of focal point of the laser is approximately 0.1 to 1mm, and the laser focus intensity is in the order of megawatts/cm².

7. The scrubber of claim 6, wherein the gases that are processed are fluorocarbon gases.

8. The scrubber of claim 7, wherein approximately 10^9 mol/cc of gas are initially decomposed before the chamber of decomposition.

9. A gas scrubber comprising:

a gas inlet pipe that provides the gas scrubber with gases to be processed;

a chamber of decomposition to which is connected the gas inlet pipe that delivers the gases to be processed, such that the gases are decomposed into a plurality of different byproducts through a thermal process in the chamber of decomposition;

a microwave radiation generator device arranged before the chamber of decomposition such that microwave radiation, output by the microwave radiation generator device, passes through the gas inlet pipe to decompose the gases flowing therein into a plurality of different gas radicals to initiate the reaction of decomposition;

means for cooling down the byproducts produced in the chamber of decomposition; and

means for scrubbing the plurality of byproducts produced in the chamber of decomposition.

10. A gas scrubber comprising:

a gas inlet pipe that provides the gas scrubber with gases to be processed;

a chamber of decomposition to which is connected the gas inlet pipe that delivers the gases to be processed, such that the gases are decomposed into a plurality of different byproducts through a thermal process in the chamber of decomposition;

- means for decomposing the gases flowing in the gas inlet pipe into a plurality of
- 5 gas radicals to initiate the reaction of decomposition;

means for cooling down the byproducts produced in the chamber of decomposition; and

means for scrubbing the plurality of byproducts produced in the chamber of decomposition.